



A research project at JSC is cooking up cuisine from around the world for future space flights. Story on Page 3.



The STS-33 crew patch features a stylized falcon looking beyond its domain toward the edge of the universe. Photo on Page 4.

Space News Roundup

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No. 39

JSC weather forecaster storms into Hugo's heart

By Kelly Humphries

While most Houstonians were thankfully watching from a distance as Hurricane Hugo slammed into the East Coast last week, one JSC worker was flying into the eye of the storm.

Steve Sokol, a National Weather Service forecaster for the Space Flight Meteorology Group took time off from his space shuttle landing site forecasting duties to add five hurricane flights to a string of 43 that had stalled 18 years ago.

Sokol, known in some JSC quarters as "Mr. Hurricane," used National Oceanic and Atmospheric Administration (NOAA) and Air Force connections to wrangle the ride at the last minute. He had tried to find a seat on other hurricane flights in recent years, but this was the first storm that lasted long enough for him to arrange a flight.

"I get restless this time of year when there are a lot of storms," Sokol said. "I needed a 'fix.' Plus, I wanted to see the modern technology they're

using now."

He said the experience will help keep him current on storm data gathering techniques and reconnaissance procedures. That will be an asset in his job, which includes tracking storms and providing information relevant to shuttle roll-back and JSC weather-closing decisions, he said.

In addition, it was a continuation of a lifelong fascination with severe storms that began when Sokol was 7 years old and a "vicious storm tore

up" his neighborhood in northeast Iowa. "My parents tried to keep me in the basement, but I kept going up."

Sokol flew a total of 43 typhoon missions from 1969-71 while an Air Force captain and reconnaissance weather officer stationed in Guam. He left the Air Force in 1975, but stayed in Okinawa and the Philippines to study the effects of severe storms on people. He was curious about their sociological awareness and reactions to storm warnings.

Sokol began his Hugo flight on a

Lockheed P-3 Orion turboprop aircraft at 6 p.m. Sept. 21. The plane made five penetrations into the storm—all but the first in darkness—before landing at 2 a.m. Sept. 22. It flew 10,000 feet up at 250 miles an hour through winds as strong as 165 miles an hour. There were 16 people on board including the crew of 10, Sokol and six news media representatives.

The aircraft was equipped with numerous meteorological instruments. Please see **HUGO**, Page 4



JSC Photo by Kim Murray

Rescue workers carry a simulated crash victim from his T-38 during Wednesday's mishap exercise at Ellington Field. The "injured" crewman was played by a volunteer Air National Guardsman.

Fake crash works mishap plan

Medical, emergency personnel respond to Ellington 'injuries'

By Pam Alloway

Medical and emergency personnel raced to an Ellington Field taxiway Wednesday in response to a simulated mishap in which a NASA T-38 skidded off a runway, injured two pilots and destroyed the aircraft.

Dr. Philip Stepaniak, JSC flight surgeon and simulation coordinator, said the purpose of the mock mishap was to exercise the JSC Mishap Plan.

"This was really the first time all of us have gotten together," Stepaniak said following the simulation. "We determined it was a success because it enabled us not only to become familiar with the procedure but also with each other

and enabled us to communicate some problems and concerns we had."

The simulation revolved around a fictitious scenario in which a NASA T-38's landing gear locked up on final approach to Ellington's runway 35 just before 10:20 a.m. On touchdown, the aircraft landing gear on one wheel broke and the aircraft fell to one side before skidding off the runway onto a nearby taxiway.

Ellington air traffic controllers reported smoke about 10:20 a.m. adjacent to the runway. Fire and rescue personnel in three fire trucks and two ambulances responded to the simulated mishap scene at 10:23 a.m. The emergency vehicles arrived on the scene with lights

flashing but without sirens.

The simulation began when air traffic controllers spotted smoke from canisters dropped by the simulation team. Aircraft Operations personnel had moved the aircraft—resting on its wheels—to the mishap site prior to the simulation.

Both pilots—played by volunteers of the Air National Guard—were incapacitated, according to the mishap scenario. The front seat pilot suffered neck injuries and was unconscious when medical personnel reached him. The rear seat pilot suffered a broken leg and later developed acute abdomen pain. Medical and emergency personnel

Please see **SIM**, Page 4

Sprinklers douse Columbia; effects being assessed

By James Hartsfield

An inspection of *Columbia* is still under way following an inadvertent activation of the fire extinguishing system in its hangar Sunday, but officials are hopeful the accident won't affect the scheduled Dec. 18 launch of STS-32.

Columbia, being readied in Kennedy Space Center's Orbiter Processing Facility 2 for its 10-day mission to deploy a SYN-COM satellite and retrieve the Long Duration



STS-34
Galileo

Exposure Facility (LDEF), was doused by water at about 9:30 a.m. CDT Sunday. The Firex System apparently was accidentally triggered during maintenance work on a valve. *Columbia's* payload bay doors were shut and the orbiter was not powered up at the time of the incident.

A preliminary investigation found that water had entered the vehicle through the forward reaction control system cavity, wing area and several access doors. No water damage occurred in the crew compartment or avionics bays, but several thermal protection system blankets may have to be replaced. Also, a few electrical components had been removed from the vehicle and were exposed to water.

However, *Columbia* was powered up Tuesday and no major problems had been found as of Wednesday. By Wednesday, the payload bay doors had been opened and a Ku-band antenna check was scheduled. If the continuing inspection reveals no

further water damage to the orbiter, the Dec. 18 launch date may hold firm.

Meanwhile, on Launch Pad 39B, preparations are in high gear for the projected 12:29 p.m. CDT Oct. 12 lift off of *Atlantis* and its Jupiter-bound payload, Galileo. After a slowdown in work last week due to the unpredictability of Hurricane Hugo, launch pad processing of *Atlantis* is again moving ahead at full steam. Kennedy was spared any adverse effects from Hugo.

Atlantis's main engines were scheduled to have undergone a flight readiness test yesterday, and Galileo's inertial upper stage (IUS) booster was slated for a countdown test today.

The flight readiness review (FRR) for *Atlantis's* mission, designated STS-34, is planned Monday and Tuesday at Kennedy. The FRR is an extensive status review by top officials of all preparations made for the flight.

Also in the VAB, stacking of the solid rocket boosters destined for *Columbia's* December flight is again under way after being interrupted last week by the threat of Hugo. In preparation for a possible hurried roll back of *Atlantis*, crews removed the left aft segment from Mobile Launcher Platform 3 (MLP 3) and removed MLP 3 from the VAB to make room. This week, the left aft segment again was mounted on MLP 3 and its instrumentation reconnected. Stacking of the left aft center segment is scheduled to begin today.

Disney veteran manages Space Center Houston

By Linda Copley

Vance Ablott, a 20-year veteran of the Disney organization, has been named general manager of Space Center Houston.

As general manager of the \$60 million project, the California native will oversee all visitor center business, including fund-raising, financing and operations.

"We are extremely pleased to have Vance on board, and I know he will be challenged in his new position," said Hal Stall, director of public affairs and president of the Manned Flight Education Foundation Inc. (MSFEFI).

"He fills what I consider the most important role in the success of our project," Stall said.

"This is perhaps one of the most exciting times in the development of the project," Ablott said. "We expect to complete design development by the end of this year. This will enable us to sell the bond financing in January and break ground in early February."

An admitted ardent fan of America's space program "since Alan Shepard's first flight," Ablott is no stranger to the visitor center concept.

Please see **DISNEY**, Page 4



Vance Ablott

JSC contractors finalists for NASA Excellence Award

The four winners of this year's JSC Team Excellence Awards will be among eight contractors vying for the 1988-89 NASA Excellence Award.

Barrios Technology Inc., Computer Sciences Corp.'s (CSC) Applied Technology Division, Rockwell International's Space Transportation Division, and Lockheed Engineering and Sciences Co. will receive the JSC awards in employee ceremonies in October during observances of National Quality Month.

All four companies are finalists for the agencywide award that will be presented by NASA Administrator

Richard H. Truly during the sixth annual NASA/Contractors Conference on Quality and Productivity at Marshall Space Flight Center Oct. 31-Nov. 1.

"These four companies exemplify the type of high technological performance which consistently delivers high quality aerospace engineering and science services, and products which are so vital to the success of this nation's space program," JSC Acting Director P.J. Weitz said.

"The Johnson Space Center recognizes these companies and their Please see **JSC**, Page 4

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays.

General Cinema (valid for one year): \$3.50 each.

AMC Theater (valid until May 1990): \$3 each.

Sea-Arama Marineworld, Galveston (valid until Oct. 17, 1990): adults, \$8.15; children \$5.10.

Sea World (San Antonio, year long): adults, \$17.25; children \$14.75; 55 Plus Mum Festival (Oct. 4): \$10 with free coupon.

Palm Beach at Moody Gardens (valid through September): adults \$2.75; children \$1.50.

Texas Renaissance Festival (open weekends Sept. 30-Nov. 12): adults, \$8.95; children \$4.95.

Texas Renaissance Festival bus trips (Oct. 14 and Nov. 4), departs JSC at 8 a.m. and returns 5:30 p.m.: under age 5, \$6; ages 5-11, \$9; adults \$12.00.

Radio Music Theater (Thursdays, 8:30 p.m. or Saturdays, 10:50 p.m. through September): free comedy for NASA employees. Call 522-7722 for reservations.

JSC

Gilruth Center News

Defensive driving—Course is offered from 8 a.m.-5 p.m., Oct. 14 and Nov. 18; cost is \$15.

Taekwondo/Hapkido—Learn the Korean art of self-defense, mental and physical discipline. Classes held on Tuesdays and Wednesdays, cost is \$40 a month.

Weight safety—Required for use of the Rec Center weight room. Classes will be 8-9:30 p.m. Oct. 4 and Oct. 25; cost is \$4.

Ballroom dance—Professional instruction in beginning, intermediate, and advanced ballroom dancing. Classes are on Thursdays, 7-8:15 p.m. for beginning and advanced and 8:15-9:30 p.m. for intermediate, starting Oct. 5; eight-week course is \$60 per couple.

Winter softball—League sign ups will be held Oct. 10-11.

Men's and Mixed Flag Football—Sign ups will be held Oct. 12-13.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

Property

Lease: 3 BR riverfront condo, Comal/New Braunfels, downstream tubing enjoyment, furn., post-season spec. rates, wknd/wk., \$160/400. George, 333-6811 or 488-4236.

Rent: Friendswood, 3-2-2, ceiling fans, low util., near mall, schools, NASA, \$625/mo. 996-9191.

Sale: 60 acres, 3 mi. from Karnes City, TX, on Hwy. 80, 50 mi. from San Antonio; 2-story house on 1.5 lots, many fruit trees, El Campo, TX, 783-9164.

Sale: Kemah lot, 111' x 180', some trees, \$7,300. 334-1883.

Sale/Lease: 10 acres, 1/2 mi. west of Hwy. 146 on FM 517, barn, ponds, util. and more. Trey, 280-4381 or 484-7834.

Sale: League City country home, Kemah area, 3-2-2, all elec., deep well, \$85,000. 334-1883.

Rent/Sale: Crystal Beach cabin, sleeps 7, A/C, close to beach, \$200 dep., \$325/wk. or \$195/wknd. or \$32,000. (409) 832-2582 or (409) 755-1638.

Sale/Lease: CLC, 3-2-2, \$750/mo. or \$79,000 conv. mortg. only. Matt, x34285 or 486-7260.

Lease: Baywind I, 2-2-2, split floor plan, W/D conn., fans, built-in bookcase, ice maker, stor., \$450/mo. plus dep. Dennis, x32418 or 486-9673.

Sale: League City, 2.06 acres, near schools, city water and sewer avail., owner fin., \$39,950. 554-6695.

Sale: El Lago, 3-2-5-2, det. gar., paneled den, sunroom w/15' bar, pool, waterfall, wooded lot, owner in Colorado. Joe, (719) 942-3627.

Rent: Lake Livingston, waterfront, 3-2, CA&H, full furn., cov. decks, pier, fishing, swimming, skiing, new cond., wknd/wk. rates. 482-1582.

Trade: Custom canyon view, 6 yr. old, Austin stone, 4-3, off 360 west of Austin, want similar age, qual., near JSC. 471-8795 or 333-6083.

Sale: 3-2 frame house on approx. 3 acres, lg. barns, gar., workshop, fenced, fruit trees, Santa Fe area. (409) 925-4047 or (409) 925-3368.

Sale: Seabrook, 3.29 acres w/sm. 2-1 home, quiet, secluded, \$95,000. (713) 532-4784.

Sale: Seabrook, 3-2-2, new A/C, heater, carpet, roof, ceramic and quarry tile, many upgrades, approx., 1,800 sq. ft., all brick, lg. den w/FPL, never flooded, redwood deck w/spa, \$69,900, assume at 9 7/8%, must qual., \$0 down. Richard, x30271 or 474-9334.

Lease: Piper's Meadow/CLC, immac., 3-2-2A, FPL, drapes, fenced, new paint and carpet, \$825/mo. 486-0315.

Sale: El Lago, 4-2-2, lg. lot, assum., updated appl., new roof, \$75,900. 532-4237.

Lease: Friendswood/Forest Bend, 3-2-2, formal DR, lg. kitchen, refrig., FPL, new carpet, fenced, \$575/mo. 482-6609.

Lease: Kirkwood So., 4-2-2D, sep. DR, den, gas util., fenced, \$550/mo. 482-6609.

Sale: Timeshare, sleeps 2, Texas Hill Country (Canyon Lake, TX), 10/28-11/4/89, \$210. 280-9488.

Sale: NE Dallas, TX, 2,100 sq. ft., townhouse, 3-3, study, LR w/WBFP, FMA DR, MBR suite w/WBFP, balcony, \$94,500, FHA assum. w/qual., will hold 2nd w/10% down. (713) 280-9488.

Sale: Big Bend area getaway, hunting, 160 acres, \$140/acre, CFD 20% down, 9% for 5 yrs. 337-4051.

Sale: Bacliff, four 1BR cabins, furn., all rented, good rental prop., \$30,000 all. 482-6278.

Cars & Trucks

'82 Chevy Impala, 24K mi., 4-dr., tan. 783-9164.

'86 Plymouth Horizon, 2.2 L, 4-dr., 5-spd., P/S, P/B, A/C, cruise, tach., digital clock, AM/FM radio, ex. cond., \$3,800. x35137 or (409) 925-8760.

'29 Mercedes Replicar, still in kit, \$5,500. Trey, 280-4381 or 484-7834.

'78 MGB, rebuilt eng., w/15K, rebuilt front-end and steering, Weber carb. and Monza exhaust sys., carpet replaced, 90K, \$3,500, OBO. x35370.

'78 Cadillac Seville, loaded w/sun roof, white/white, runs good, \$2,500. x33110 or 471-9647.

'77 Chevy Caprice Classic, does not run, good tires, new carb., \$300. 480-3909.

'82 Citation V-6 auto., A/C, P/W, AM/FM cass., very clean, well maint., have maint. schedule, \$2,500. Bruce, x35571.

'86 T-Bird Turbo Coupe, red ext. w/red leather int., loaded, ave. B.B. loan value, 100% fin. to qual. buyer, BO. Jeff, 280-7720 or 486-5422.

'81 Ford F150 custom supercab, auto., A/C, P/S, P/B, 351 V-8, dual tanks, step bumper, tinted windows, jump seats, \$2,899. Jim, x36588.

'80 Triumph TR7 convert, Anniv. Ed., 5-spd., new Pirelli tires, brakes, paint, looks and runs great, \$3,500. Steve, x34176 or 486-8424.

'88 Taurus sedan, burgundy, 6 cyl., P/W, P/S, P/L, moon/sun roof, oversized tank, rust prev., grocery net, 21K mi. 332-1553.

'49 Chevy, compl. renov., \$3,500. 925-4419.

'86 Toyota Camry, auto., \$6,600. 480-9482.

'83 Mercury Lynx L station wagon, good cond., \$1,950. Hal, 480-8190 or 337-2033.

'84 Toyota PU, AC, AM/FM cass., new tires, 4-spd., blue, 49K, ex. cond., \$4,500, OBO. Roland, 481-5606 or 477-6841, ext. 273.

'88 Pulsar, 5-spd., loaded, AM/FM/cass., A/C, T-tops, lt. blue, like new, 36K mi., \$9,750, OBO. Stacy, x35127 or (409) 938-1697.

'72 Buick Electra, V-8, white, A/C, P/S, P/B, R/W, cruise, tilt, deluxe uphol., like new, ex. cond., \$2,995. x39109.

'63 Olds, Delta 88, V-8, A/C, radio, P/S, P/B, one owner, '63 consumer report top rating, perf. cond., \$1,995. x39109.

'85, 35' Mallard motor home, loaded, low mi., \$36,000. 337-4051.

Chevy 4x4 Blazer, auto., air, cruise, tilt, AM/FM, folding rear seat, power tailgate, good cond., \$2,195. Terry, x38456 or (409) 935-4198.

'69 Firebird, rebuilt 400, new paint, Ltd. 500, \$5,000; '74 Olds Omega, \$1,500. 480-6048.

'84 Chevy Celebrity, 4-dr., auto., A/C, P/W, P/L, cruise, tilt, deluxe uphol., reclining bucket seats, AM/FM radio w/tape deck, metallic brn., \$4,400. Edward, x36250 or 481-4889.

'87 S-10 Blazer, red, 6 cyl. fuel inj., A/C, 30K mi., assume notes. Jack, x36956 or 485-1083.

Boats & Planes

14' ski boat, 80hp Merc., galv. trailer, skis, ex. cond., 38mph, \$1,995. x35180 or 326-3706.

16' day sailer and trlr., no sail, fair cond., \$250. 333-6594 or 333-3725.

18.5' Larson power boat, 90hp Evin. O/B, Sportsman galv. trlr., good cond., \$2,000. 474-2200.

Cycles

'80 CB 750 custom Honda, good cond., \$1,050 cash. 337-1896.

'85 Honda Shadow 500, ex. cond., 8K mi., new batt., \$1,400. x38504 or 332-3157.

'82 Yamaha Virago 920, AM/FM stereo cass., plexifaring, saddle and tank bags, helmet, 2-way intercom, cymom instruments, low mi., \$1,200. Bill, x33210.

'86 Honda Rebel, metallic gray, 1,625 mi., like new. (409) 737-2648.

Bicycle wheels, Shimano Dura-Ace hubs, sew-up rims, \$90/pr. Jay, x38800.

3-motorcycle Sunco trlr., lg. tool box att., ex. cond., \$395. 333-6594 or 333-3725.

Raleigh Wyoming 27" bicycle w/moving razer rims, Shimano 105 pedles and derlier Dacompe brakes, front and rear Jun block burn saddle bag racks, cass. freewheel and Halogen light kit, \$250. 554-2804.

'86 Honda 250 Rebel, blue, w/helmet and cover, 12K mi., may need starter, \$550 firm. Roger, x38026 or 996-5978.

Audiovisual & Computers

Tandy 1000 Ex (IBM compat), 256K, 2-360K

Today

Cafeteria menu—Special: fried chicken. Entrees: fried shrimp, baked fish, beef stroganoff. Soup: seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

Monday

Cafeteria menu—Special: meat sauce and spaghetti. Entrees: franks and sauerkraut, sweet and sour pork chop with fried rice, potato baked chicken. Soup: cream of potato. Vegetables: French beans, buttered squash, lima beans.

Tuesday

Cafeteria menu—Special: smothered steak with dressing. Entrees: beef stew, liver and onions, shrimp Creole. Soup: navy bean soup. Vegetables: buttered corn, rice, cabbage, peas.

Wednesday

Cafeteria menu—Special: salmon croquette. Entrees: roast beef, baked perch, chicken pan pie. Soup: seafood gumbo. Vegetables: mustard greens, Italian green beans, sliced beets.

Thursday

Cafeteria menu—Special: stuffed

cabbage. Entrees: beef tacos, ham and lima beans. Soup: beef and barley. Vegetables: ranch beans, Brussels sprouts, cream style corn.

Oct. 6

Cafeteria menu—Special: Salisbury steak. Entrees: fried shrimp, deviled crabs, ham steak. Soup: seafood gumbo. Vegetables: buttered carrots, green beans, June peas.

Oct. 11

MAES luncheon—The monthly luncheon for the Society of Mexican American Engineers and Scientists will be held at 11:30 a.m. at Mama-cita's on the Bay Restaurant, 18206 Egret Bay Blvd. Contact Frank Moreno, x31208, for information.

Oct. 24

BAPCO meets—The Bay Area PC Users Group (BAPCO) will meet at 7:30 p.m. at the League City Bank and Trust. Contact Earl Rubenstein at x34807 or 326-2354, or Ron Waldbillig at 337-5074 for information.

Oct. 31

Quality, productivity conference—The sixth annual NASA/Contractors Conference on Quality and Productivity will be Oct. 31-Nov. 1 at

the Von Braun Civic Center in Huntsville, Ala. This year's theme is "Partnership for Continuous Improvement." NASA Administrator Richard Truly is to announce the 1988/89 NASA Excellence Award for Quality and Productivity. To receive an invitation, contact the NASA Quality and Productivity Improvement Programs Office at 202-453-2912 by Aug. 28.

Nov. 6

Supercomputing symposium—"Supercomputing: Parallel and Numerically Intensive Computing" will be the focus of the next Research Institute for Computing and Information Systems (RICIS) series Nov. 6-7 at the South Shore Harbour Hotel and Convention Center. Co-sponsored by RICIS and JSC. Sessions will consider supercomputer design; major issues of supercomputing; innovative computing and experimental architectures; image processing, graphics and simulation; and computational fluid dynamics. Cost is \$195 for university and government workers or \$275 for others. NASA employees should contact Glen Van Zandt, x33069.

floppy drives, color monitor, DMP printer, softwares, and manuals, \$800. C. Chang, x39258 or 486-0007.

Realistic 200-channel programmable scanner, 1-yr. old, new cond., \$250. 488-0597.

Casio fx-8000G graphics computer, 1446 program steps, 1917 file steps, 96x64 dot matrix display, interface for printer and/or cass. stor., all manuals, \$80. Tom Clark, x39842.

Osborne port CP/M computer w/20 5-1/4" floppy drives, modem, ex. monitor, and 80 col. upgrade, software incl., word processing, data base, spreadsheet, others, \$295. 326-1278.

Apple IIc full sys., modem, ext. drive, 12" monitor asstmt. of fin. and util. software, mouse, \$850. 538-1479.

Household

Chromcraft din. set, mod., exec. walnut table, 4 diamond-tufted blk. vinyl chairs, \$220. Boyd, 488-8806.

Comfortable couch w/sofa bed, \$125; white wicker table, glass top w/4 chairs, \$80; solid wood coffee table w/2 end tables, \$150. 484-4538.

25" RCA console, good cond., \$100 cash. 337-1896.

DR hutch, Cargo brand, yellow pine, oak stain, cupboards below, shelves on top, \$250, OBO; oak veneer TV cart, doors/wheels, \$50, OBO. Helen, x38413 or 554-2728.

Sofa bed, brn. and white striped contemp., ex. cond., \$200. 488-6521.

Lg. brn. sofa, contemp., comfort, good cond., \$75. 488-6521.

Synthetic marble bath vanity top w/wash basin, 22"x31", \$20; mirror, 30"x30", \$15; medicine cabinet, \$10; brass bath access., \$10. x36516 or 941-5908.

Kenmore microwave, lg. capacity and wattage, works perf. 480-7257.

Queen waterbed, 90% motionless w/heater and 6-dwr. pedestal, head is wall unit w/ lb. bridge, center mirror, 6 drwrs. per side w/stor. at head and above drwrs., 1-yr.-old, was \$3,000, now \$1,800, OBO; antique ladies oak rolltop desk, circa 1910, app. for \$1,500, sell for \$500, OBO. 332-1553.

Ethan Allen early Amer. top for base cabinet, shelves w/2 cabinets, 40"Wx48"Hx13"D, perf., \$63; magazine stand, oak, 19"Wx21.5"Hx12"D, ex. cond., \$28. Bill Z. 333-2549.

Rattan love seat, like new, \$300; coffee table to match, \$100. 483-6691.

Microwave oven w/revolving cooking surface, Panasonic, \$75, OBO; G.E. toaster oven, \$30, OBO. x39296 or 480-5060.

2 end tables/coffee table/sofa table w/glass, all for \$150; queen sz. bed, fair cond., \$50; special made arch-shaped HB (queen) cov. in gray satin Moire' fabric, was \$500, now \$150, OBO. Karen, x37099 or 333-4639.

G.E. built-in dble. oven, ex. cond.; new Levolor miniblind, sz. 82"x36", alabaster, 488-2822.

2 Bedsit foam chair cushions, brick red, coord. throw pillows, \$55/pr. 280-9488.

Early Amer. couch, brn. tone, \$90. Ed, x36250.

Lost & Found

Found roll of film in Bldg. 4 lobby. Karen, x30665.

Lost 6-spd. Raleigh bike, missing from Mission Control Center. Jon Axford, x37671.

Photographic

Edmund scientific reflex telescope, 90X Barlow lens, 8mm RKE eyepiece, \$75. x34397 or 333-1485.

New Nishika 3-D cam., uses reg. 35mm film, \$200, \$400 w/access. Laurie, x37915 or 326-1930.

Pets & Livestock

Free puppies, blk. and fluffy, Collie/Lab. mix, good w/children, born Aug. 3. Myron, x39419 or 482-8647.

AKC Siberian Husky fem., blue eyes, blk./white, not spayed, \$200, OBO. Bob, x31941.

Cocker Spaniel puppies, champion dam and

sire, blk./white, all shots. 488-2395.

Wanted

Want clean 2-2 townhouse to buy, notes around \$475-550/mo., prefer assumpt., cons. lease w/option to buy. 282-3869 or 280-9018.

Want child's playhouse, wood or tough plastic in good cond., boy's clothes, 4T and up pref., Oshkosh, Levis, Bugle Boys, etc.; Tyke's toys and Fisher Price. Mary, 484-6630.

Keyboard synthesist seeking musicians for pop/rock band. Eddie or Susan, x32858 or 534-3649.

Want sail for 12' laser sailboat. Don, x38039 or 333-3313.

Want to buy covered boat slip w/lift for ski boat. Madeline, 480-0227.

Want used child's carseat, \$15. Linda, 996-1990.

Want tennis racket for beginner. Julie, x35774.

Want fem. roommate to split rent of 2-2 patio home near JSC, W/D, gar., near pool, \$450/mo. plus util. Cathy, x30745.

Riders wanted for vanpool, West Loop park and Ride to NASA. Richard, x37557.

Musical Instruments

Korg elec. piano/organ, stand, Peavey keyboard amp, like new, was \$1,500, now \$795, will fin. Ed, x33617 or 896-6347.

Hoffner guitar made in Germany in 1960's, solid body elec. w/3 pickups, incl. case, \$150. x35180 or 326-3706.

King trombone incl. case and music stand, \$175, OBO. x31252 or 482-2425.

Drums, 7-pc., dbl. bass, high-hat, ride, 4300; Musser M650 Jr. percussion kit, \$200. Wayne, x36617 or 488-8884.

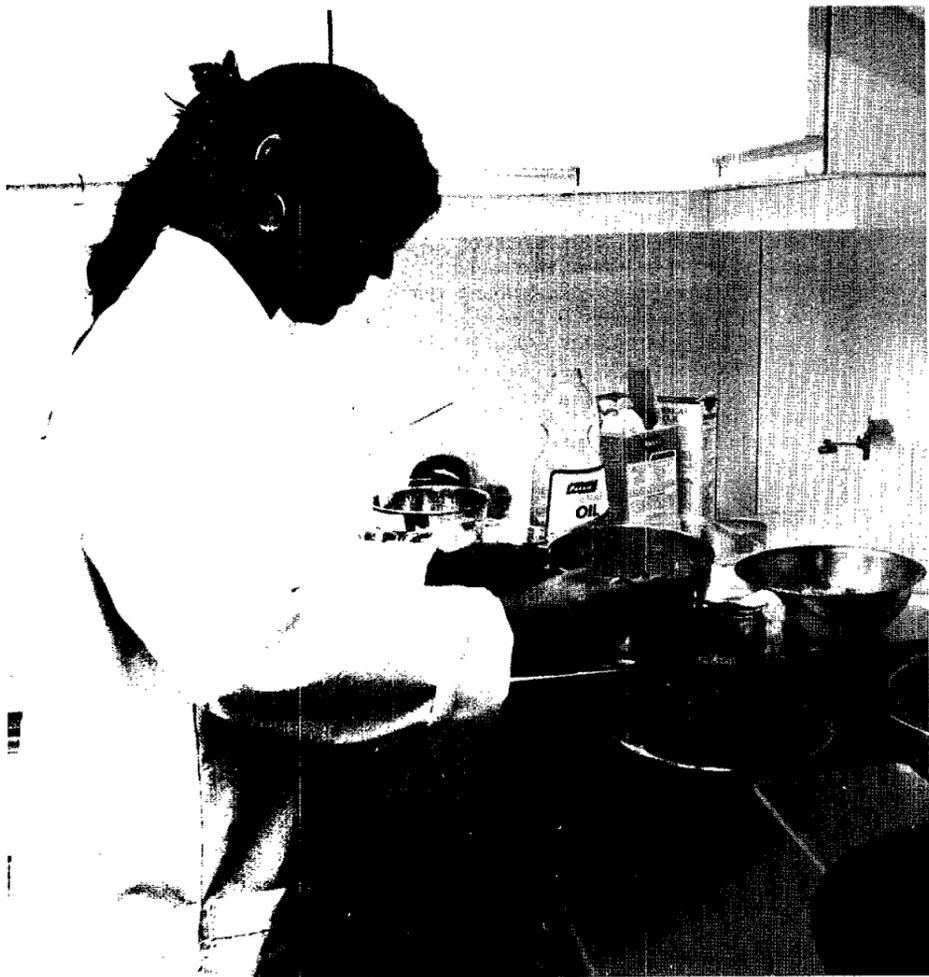
Conn trombone, used, good for beginner, \$100. x37788 or 337-4327.

Miscellaneous

Flight simulator, hrs. (5), \$100. 996-9191.

Steelcase metal desk, good cond., \$35. Mary, 484-6630.

Funk and Wagnall Encyclopedia, \$30. 480-6797.



The JSC Food Systems Laboratory in Bldg. 17 is where international recipes are prepared and tasted. Left: Dr. Selina Ahmed prepares shrimp tempura for a Japanese food taste test. Below: Taste testers fill their plates. From left are Dr. Charles Bourland, Gloria Zerkus, Selina Ahmed and Susan Hill. Center: Various vegetables are fried Japanese-style and presented for tasting.



WAY-OUT TAKE-OUT: Cooking up ethnic foods that can go the distance

By Kelly Humphries

The ultimate in take-out food—when it goes into orbit you might even call it way-out take-out food—may be assuming a more international flavor in the future.

When astronauts are living aboard Space Station *Freedom*, at a lunar base or on a ship headed toward Mars, they may be able to dine on regional delicacies from France, Russia, Canada, Japan and other countries as a result of a research project now filling the Food Systems Laboratory in Bldg. 17 with tantalizing aromas from around the world.

Dr. Selina Ahmed, an associate professor of human nutrition at Texas Southern University, is principal investigator for the International Food Patterns for Space Foods research project that is looking at the taste, aroma, nutritional value and packaging of ethnic cuisine from a variety of countries.

The program, funded through JSC's Equal Employment Opportunity Programs Office, is expected to play a significant role in providing nutrition research for space explorers of different ethnic backgrounds, she said.

"Our main purpose is to enhance morale with familiar foods," said Ahmed, a native of Bangladesh. The research effort is divided into four basic tasks.

The first task, Ahmed said, was identification of the dietary patterns to be studied, based on the nationalities of astronauts who have flown in space and who are expected to fly on space

station as international partners. She and her army of tasters started with French and Russian foods and plan to move on to Japanese and German foods this month. Eventually she aspires to study the dietary patterns of every country in the world.

The next research task was evaluation of food items from the identified dietary patterns. The researchers randomly selected dishes from several dietary patterns and began taste tests.

For the first round of taste tests, Ahmed said, she and graduate assistant Pauline Cornish and undergraduate assistant Amanda Cox prepared 38 Russian food items and at least 35 French and Canadian food items. These were evaluated on the standard Food Systems Laboratory's score sheets by JSC volunteers with the appropriate ethnic background or

experience with foreign foods. Last Friday, the test kitchen was brimming with Japanese dishes.

The food items fall into categories of salads, soups, entrees and desserts. Some of the French dishes tested were French onion soup, veal scallops with crab and broccoli, fresh peas braised with onion and lettuce, and braised red cabbage in red wine with chestnuts. Russian dishes included Turkmenian pilaf with chicken, Caucasian lamb stew, borsch and kapoosta. Japanese dishes

included shrimp tempura, fried lotus root and sushi.

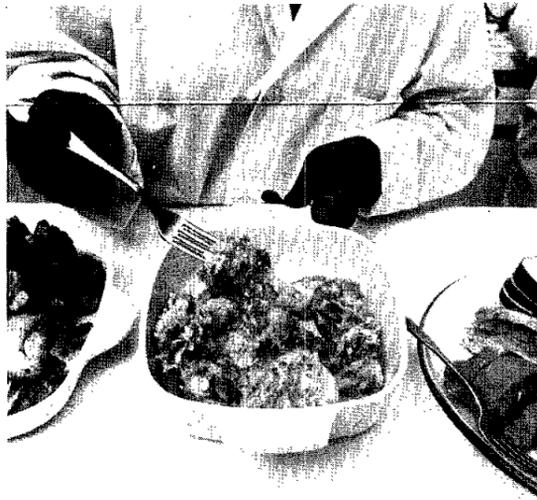
Task three involves packaging and shelf-life studies. The foods that are approved by the taste-testing panels will be packaged, stored and tested at three-month, six-month and nine-

month intervals. If they pass the storage test, they can be recommended for acceptance into the Space Nutrition Program, which will assess the dishes' nutritional value. Ahmed said her group hopes to make its first recommendations in May.

Dr. Charles Bourland, subsystem manager for space station food and the grant monitor, said the broad purpose of the research is to find some foods that are internationally acceptable, that astronauts from any country can enjoy. The idea, he said, is to develop a more standardized selection of menu items from which astronauts may make their selections. This would reduce the need to develop individual menus for each astronaut or crew he said, adding, however, that he suspects some catering to individual tastes will still be necessary.

Ahmed said her research also should help diet-oriented members of the astronaut health care team better understand and assist patients from other cultures during illness. The data should be useful to those who develop food plans for long-duration flights involving manned missions to Mars and the establishment of lunar colonies.

As the research project intensifies, she said, it will begin to explore the adaptability of plant varieties common to ethnic food groups to closed loop ecological life support systems, which are being studied for use on long-duration space flight.



Left: Researcher Selina Ahmed gets help in the kitchen from graduate assistant Pauline Cornish, center, and undergraduate assistant Amanda Cox. Above: NASA and Texas Southern University officials gather at the food laboratory to evaluate the research project's progress. From left are Dr. O.C. Turner, chairman of the TSU Home Economics Department; Dr. Joseph Jones, dean of the TSU Graduate School; Chris Perner, chief of JSC's Man-Systems Division; and Dr. William H. Harris, TSU president.

Engineering division chiefs are appointed

New division chiefs have been assigned to lead JSC's Systems Development and Simulation Division and Tracking and Communications Division by Engineering Director Henry Pohl.

Irvin J. Burtzloff has been appointed chief of Systems Development and Simulation, responsible for management of the Shuttle Avionics Integration Laboratory and the Systems Engineering Simulator. Previously the division's deputy director, Burtzloff also will supervise the design, development, integration and testing of large multidisciplinary systems for the space shuttle, space station, and development and testing

of robotics and telerobotic systems.

Burtzloff succeeds Pat Kurten, who retired.

Kenneth E. Land was appointed chief of Tracking and Communications, effective June 18, 1989. He will be responsible for research, development and testing of all television, communications, tracking and telemetry systems for the space shuttle and space station. He previously was chief of the Tracking Techniques Branch.

Land succeeds Ralph Sawyer, who retired.

Retired comptroller dies

Larry G. Damewood, who retired as JSC comptroller in 1988, died Monday at Humana Clear Lake Hospital in Webster. He was 56. Services were Wednesday at James Crowder Funeral Home in Dickinson.

Damewood joined JSC in 1963 as a contracting officer. He was chief of the Research and Development Budget Office from 1970-73; chief of the Space Shuttle Resources Office from 1973-74; chief of the Central Budget Office from 1974-81; and

director of finance from 1981-83.

He is survived by his wife, Cheryl, two sons and one daughter.

FAO team earns honors

The Flight Activities Officer (FAO) team led by Karen Engelauf on STS-28 received the honor of hanging the mission emblem.

Engelauf and the rest of the FAO team were recognized by Lead Flight Director Chuck Knarr for their contribution to the real-time replanning effort that took place during the flight.

The presentation and hanging of the plaque took place in the Mission Control Center shortly after landing.



Burtzloff

Land



Damewood

Engelauf

Atlas launch ends unmanned era for NASA

The final NASA launch of an unmanned rocket from Cape Canaveral, Fla., went off without a hitch Monday, closing an era for the agency and opening a new era of commercial space launches.

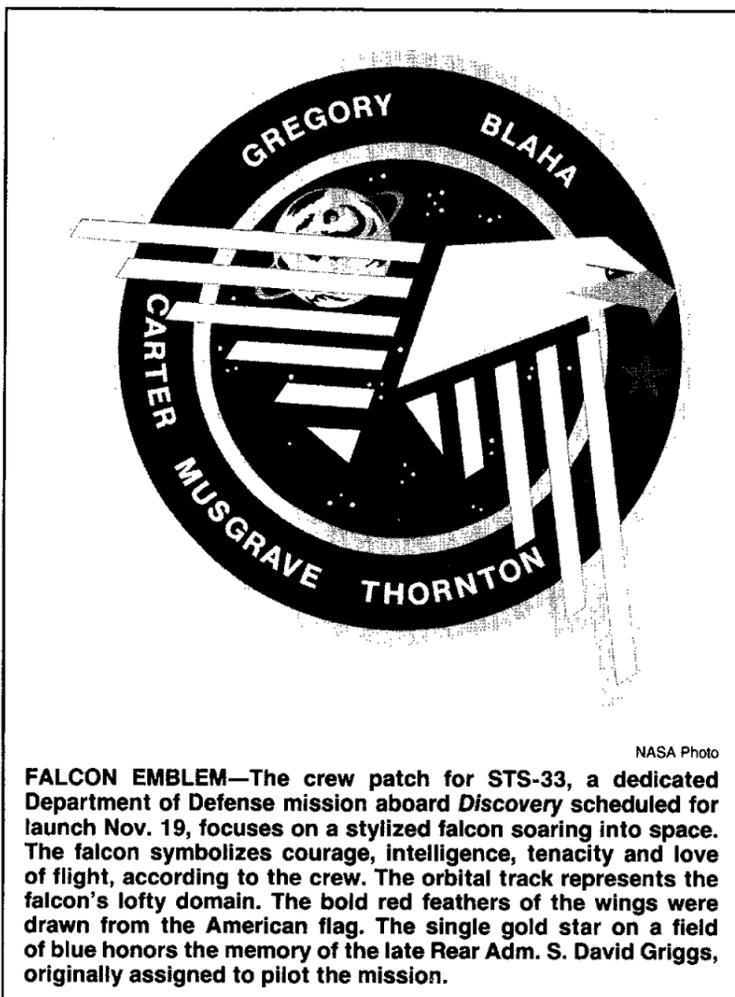
The Atlas Centaur rocket carrying a Navy communications satellite lifted off from its launch pad at 3:56 a.m. CDT. The launch was postponed two years after a pad mishap damaged the fuel tank on what at the time was the last available Centaur upper stage.

The payload, the eighth FLTSATCOM satellite designed to link American armed forces around the world with military leaders and the president, separated from the two-stage rocket about 40 minutes into the flight.

The rocket was the 448th unmanned launch for NASA. The agency plans only one more large-scale unmanned launch—a Delta set to lift off Nov. 9 from the Western Space and Missile Center at Vandenberg Air Force Base, Calif.—before contracting the business to private aerospace companies. The private companies will continue to use facilities at Cape Canaveral for their launches.

NASA's move to private unmanned launches is an outgrowth of the "Space Policy and Commercial Space Initiative to Begin the Next Century" announced by President Ronald Reagan on Feb. 11, 1988.

The Atlas rocket was the launch vehicle for the Mercury capsules that carried America's first men in orbit, and will continue to be used as a commercial launch vehicle by its manufacturer, General Dynamics.



NASA Photo

FALCON EMBLEM—The crew patch for STS-33, a dedicated Department of Defense mission aboard *Discovery* scheduled for launch Nov. 19, focuses on a stylized falcon soaring into space. The falcon symbolizes courage, intelligence, tenacity and love of flight, according to the crew. The orbital track represents the falcon's lofty domain. The bold red feathers of the wings were drawn from the American flag. The single gold star on a field of blue honors the memory of the late Rear Adm. S. David Griggs, originally assigned to pilot the mission.

JSC contractors win Team Excellence honors

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employees not only for their outstanding products and services, but equally important for their leadership and commitment to continuous quality and productivity improvement," Weitz added. "It is this optimal level of dedication to quality and performance which will enable us to sustain our leadership in manned space flight."

The JSC Team Excellence Awards recognize JSC aerospace contractors

that have demonstrated outstanding dedication and commitment to quality and productivity in support of U.S. manned space flight programs.

Barrios Technology provides engineering services for space shuttle and Space Station *Freedom*, the Crew Emergency Return Vehicle (CERV), and mission operations, and also conducts instrumentation calibration and repair for JSC.

CSC's Applied Technology Division

was recognized for its performance in the area of program management, systems engineering, maintenance, and operations of the JSC institutional computer systems and networks. Its work with the migration of institutional systems into the new Central Computer Facility is also noted in the award.

Lockheed Engineering and Sciences Co. furnishes JSC with engineering and science services in support of shuttle and space station programs, as

well as other advanced technology development initiatives.

Rockwell's Space Transportation Systems Division is responsible for building the space shuttle orbiters, supporting the missions, and providing engineering services to the National Space Transportation System. In addition to the Downey, Calif., operations, the division's Rockwell Shuttle Operations Co., Houston, directly supports the space shuttle missions.

Disney veteran takes Space Center Houston reins

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He formerly served as Walt Disney Imagineering's project manager for Space Center Houston.

"It took some coaxing by Mr. Stall to get me to move," he said, "but the prospect of helping the public create a sense of ownership in the space program, to help them understand the human side of the adventure, not only in flight roles but also the tremendous ground support, was too exciting to

pass up."

Abblott expects to staff the 160,000-square-foot visitor center with approximately 150 to 175 employees. He is currently firming up the center's operational requirements, from the staffing needs of the food, retail, and display areas to the types and lengths of training the employees will require.

Ways to accommodate the 12,000 visitors a day the visitor center is expected to attract without undue

impact on employee traffic also are under study.

"It is important to be a good neighbor," Abblott stressed. "We are looking at operating hours and events to try and minimize our impact to the current congestion and maximize the visitor's experience. We want to create a positive environment for the community as well as the visitor."

Abblott joined the Disney Co. in Anaheim, Calif., 20 years ago, after

completing his undergraduate and postgraduate work at California State University at Fullerton. He spent 10 years in the services, administration and employee relations areas of Park Operations.

In 1980 Abblott joined the Walt Disney Imagineering team to assist in the development of Tokyo Disneyland, a move that eventually took he and his family to Japan for a year and a half. He served as manager of project

coordination and installation, and functioned as a liaison to the foreign architects and manufacturers to integrate Disney show and ride elements in the overall project.

Prior to becoming project manager for Disney for Space Center Houston, Abblott worked on a very successful Star Tours attraction at Disneyland, the opening of the first Disney Gallery, also at Disneyland, and the Gene Autry Western Heritage Museum.

Hugo penetrated by forecaster

(Continued from Page 1)

ments and radar under the fuselage and in the tail section. During each pass, the crew dropped "dropsonde" instrument packages into the exact center of the storm.

The purpose of flying into hurricanes is to gather information on their intensity, especially their maximum sustained winds and lowest surface pressures. Those readings were particularly important to forecasters watching Hugo, Sokol said, because it was rapidly intensifying as it approached Charleston, S.C.

"The damage to Charleston wasn't surprising," Sokol said. "We took off late due to a fuel leak. It got darker and darker as we approached storm.

We had to punch through feeder bands of solid thunderstorms, lighting and winds.

"Suddenly we were in the eye, which was about half filled with clouds circling into the center in an oriental rug pattern. The sea was churning in streaky patterns. We had a few good jolts; spilled our coffee once; hit the floor once. But otherwise it was about an average storm. I've been in worse."

Sokol said one of the most striking images was the stadium effect of high clouds all around the aircraft while in the eye. Inside the eye, it was generally clear and you could see the stars, he said.

"It was like old times," he said. "I felt like I could do it again."

Space News Roundup

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Sim provides mishap practice

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stabilized the pilots at a triage site at Ellington before transporting them to Southeast Memorial Hospital.

Ellington Fire Chief Holbrook was in charge of operations at the emergency scene. Firefighters sprayed water on the ground around the aircraft, practicing procedures that would have been needed to extinguish flames. After declaring the area safe, Holbrook turned the operation over to John Stames, ground safety officer in JSC's Aviation Safety Office.

Participants moved a mobile crane and flatbed truck into position next to the aircraft. During an actual mishap operators would have lifted the aircraft off the taxiway and onto the flatbed

truck, clearing the area.

About 40 people from Aviation Safety, the Aircraft Operations Division, Ellington Air National Guard, JSC's Security Division, Ellington Fire Department, JSC's Television and Photography Support Branches, JSC Safety Division, JSC's Medical Operations Branch and JSC's Media Services Branch participated.

"There were some minor problems that once solved will enhance the mishap plan especially in the areas of communications," Stepaniak said.

Stepaniak said the group also suggested provisions be added to the mishap plan that would address fuel spills and involve personnel trained in cleanup procedures.